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Journal of the

Electrochemical Society

216 West 102nd Street, New York 25, N.Y.

AUGUST 1954 VOL. 101 · NO. 8

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Published monthly by The Electrochemical Society, Inc., Mount Royal and Guilford Aves., Baltimore 2, Md., combining the JOURNAL and TRANSACTIONS OF THE ELECTROCHEMICAL SOCIETY. Editorial offices: 216 West 102nd Street, New York 25, N. Y. Statements and opinions given in articles and papers in the JOURNAL OF THE ELECTROCHEMICAL SOCIETY are those of the contributors, and The Electrochemical Society assumes no responsibility for them. Subscription $11.25 to members, $15.00 to nonmembers. Single copies $1.25 to members, $1.50 to nonmembers. Copyright 1954 by The Electrochemical Society, Inc. Entered as second-class matter November 15, 1947, at the Post Office at Baltimore, Md., under the act of August 24, 1912.

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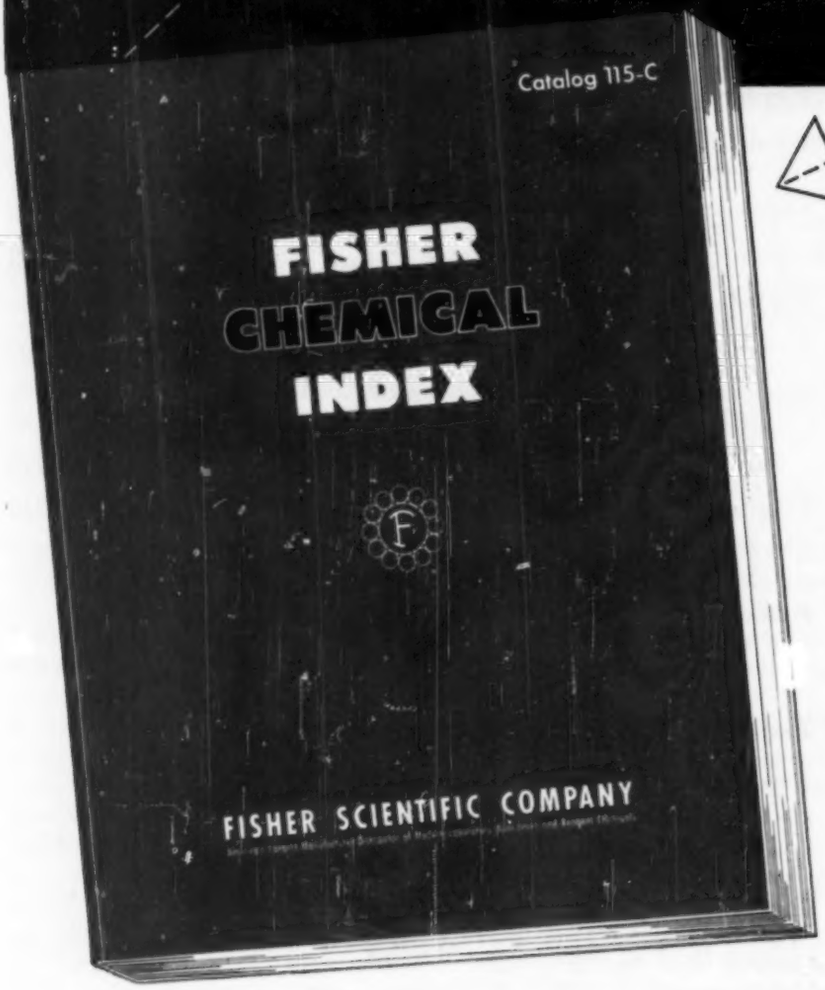

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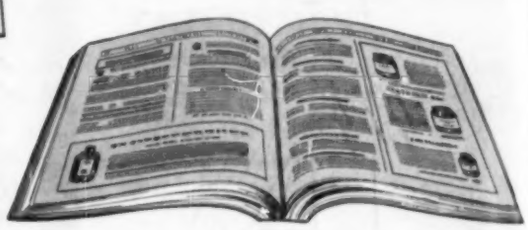

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Editorial

Women in Physics and Chemistry

WOMEN trained in the physical sciences should become an increasingly important source of technical manpower. The chemical industry in particular has found a definite area of laboratory work where women are either equal or preferable to men and where they will continue to be employed, even if the supply of men-chemists should meet the increasing needs of the industry—an unlikely situation in the foreseeable future. Results of a recent questionnaire sent to industrial laboratories employing physicists showed that 25 out of 35 respondents hire women as scientists without discrimination because of their sex, 7 other companies employ technically trained women only for special jobs, and 3 companies, among those replying to the inquiry, refuse to hire women as scientists.[1]

Now it should be added at once that women are used mainly in supporting roles. Only a very small per cent have had sufficient training to do independent scientific work and there is little evidence that many who have had more training are inclined toward independent careers. Women are most successful and appear happiest in the position of technical aide to scientists and engineers engaged in research and development programs. They are more willing than men to do routine repetitious work. They are patient, faithful, and dexterous. They are subjective rather than objective in attitude.They get satisfaction in the approbation of colleagues.

Industrial laboratories are interested in training and ability regardless of sex. They would be glad to find women prepared to do independent research. This requires training beyond the bachelor's level. There are, however, many positions that require sound basic training in science but not advanced specialization. Women with both interest and aptitude in science are useful here even though their period of employment is not long. It is well known, of course, that rapid turnover is the principal cause of dissatisfaction with women. One large industrial research organization has found that the half-life period of technically trained women is three years; that is, half of those employed in any one year will have left by the end of the third year. Short tenure and lack of long range professional interest lead industrial employers to assign women to less important and short term tasks requiring a minimum of on-the-job training.

Women with the bachelor's degree in chemistry appear better equipped for industrial laboratory work than those who have majored in physics and mathematics. The latter are often deficient in knowledge of modern physics, particularly electron physics, and in applied mathematics. Nevertheless and contrary to the opinion expressed in a recent publication,[2] there are many opportunities for women prepared in physics and mathematics. In the past 15 years American industry as a whole has doubled in size. During the same period the chemical industry has grown more than fourfold and the electronic industry is now about ten times larger than in 1939. It is well known that industrial chemistry has need of the 400 women chemical graduates now coming each year from the colleges and universities. Very likely a similar number of women who have specialized in physics and mathematics could expect immediate employment in industrial electronics and thereby contribute significantly toward relieving the mounting shortage of technically trained manpower.

Finally, the critical and growing need of physics and chemistry teachers in the secondary schools offers an excellent opportunity for the employment of women with knowledge of these subjects. The principal obstacle here is the requirement of teacher certification. The women's colleges and universities provide adequate education in the physical sciences for high school teaching, but their graduates are unwilling (quite understandably) to meet the public school requirement of an examination to secure a teacher's certificate. As pointed out editorially in this Journal recently, the strangle-hold of the teacher's colleges and normal schools on the American public school system is a serious impediment to the successful chemical teaching and, inferentially, to science teaching in general. A deplorable consequence of this situation is the decreasing proportion of capable young men and women attracted to the field of the physical sciences.

—RMB

[1] G. SCHWARZ AND B. L. DILMORE, *Am. J. Phys.*, **22**, 184 (1954).

[2] A. W. SMITH. "Careers in Physics," Long's College Book Co., Columbus (1951).

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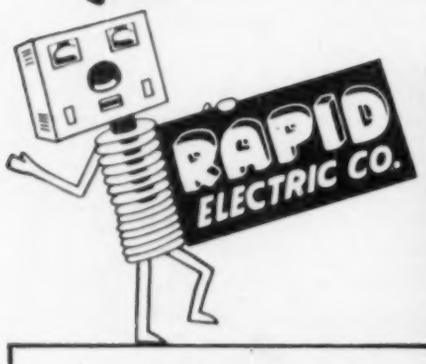

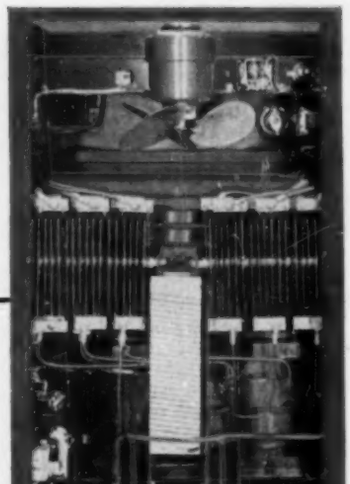

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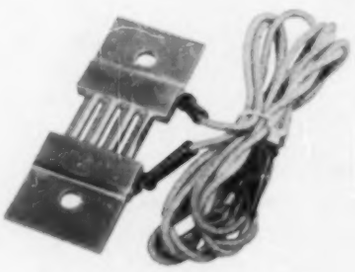

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Racine Avenue Police Station. The officer explained that Mr. "X" should not be worried, but that it was *very* important that he call. Mr. "X" was located and the message delivered, whereupon he muttered, "I know what it is, it's my room-mate!" No further investigation was made.

So far as is known, no other mishaps occurred more serious than the loss of a ladies umbrella (checked maroon pattern, plastic handle). It was found near the registration desk Monday evening, ... will be held until claimed.

The Chicago Section is beginning preparations for the fall 1960 meeting and will welcome suggestions for improvement in arrangements at any time during the next six years.

H. T. F.

Candidates Nominated for Society Offices, 1955

The Nominating Committee, appointed by President M. J. Udy, having met at Chicago, Ill., during the 105th Meeting of The Electrochemical Society, presents the following list of candidates for office for the term 1955–1956:

For President—
H. H. Uhlig

For Third Vice-President—
W. C. Gardiner
F. A. Lowenheim
Sherlock Swann, Jr.

For Treasurer—
L. I. Gilbertson

These candidates have been notified, and each has expressed his willingness to run for office and to serve if elected.

The two other Vice-Presidents, Hans Thurnauer and Norman Hackerman, since they were elected for a three-year term, will automatically become first and second Vice-President, respectively.

The above slate will be voted on in the fall ballot-by-mail election—the successful candidates to assume office in the spring of 1955. This report was submitted by M. L. Holt, R. M. Hunter, J. C. Warner, Eugene Willihnganz, and G. W. Heise, Chairman.

Young Author's Prize

At the Annual Banquet held on Tuesday evening, May 4, the Young Author's Prize of $100 and a year's membership in the Society was presented to J. Halpern, University of British Columbia, Vancouver, Canada, for his paper "Kinetics of the Dissolution of Copper in Aqueous Ammonia" which appeared in the October 1953 issue of the JOURNAL.

J. HALPERN

Dr. Halpern was educated in Montreal, Quebec, where he graduated with honors in chemistry from McGill University in 1946. After receiving his Ph.D. degree in 1949, he held a National Research Council of Canada Postdoctorate Overseas Fellowship in the Department of Physical Chemistry of the University of Manchester, England. In 1950 he joined the staff of the University of British Columbia as Assistant Professor of Chemical Metallurgy.

Dr. Halpern is the author of some 15 scientific papers dealing with physical chemistry and chemical metallurgy. Recently his research has been concerned chiefly with the kinetics of oxidation-reduction reactions.

Turner Memorial Award to R. B. Holden

Robert B. Holden, of Sylvania Electric Products Inc., Bayside, N. Y., is the winner of the Francis Mills Turner Memorial Award, sponsored by the Reinhold Publishing Corporation, consisting of $100 worth of books and a year's Electrochemical Society membership. His paper, entitled: "The Hot-Wire Process for Zirconium" (coauthor, Bernard Kopelman), appeared in the March 1953 issue of the JOURNAL.

Born at St. Louis in 1924, he received the A.B. degree in chemistry from the University of Missouri in 1944. After graduate work in physical chemistry at Cornell 1944–45, he spent the following year working on the Manhattan Project unit at Dayton, Ohio. In 1947 he received a research fellowship at Ohio State University and Ph.D. degree in physical chemistry was conferred on him in March 1950.

R. B. HOLDEN

He was employed by Sylvania Electric Products Inc. as a senior engineer in the Metallurgical Laboratory, immediately after receiving the Ph.D. and was promoted to Section Head in 1952. He has been in charge of the Chemistry Section of Atomic Energy Division at Bayside since its inception. His fields of current specialization are: thermodynamics, high temperature chemistry, extractive metallurgy and process development.

Dr. Holden is a member of the American Physical Society, American Chemical Society, and Phi Beta Kappa in addition to The Electrochemical Society.

Eighth Annual Battery Conference

The Eighth Annual Battery Conference was held on May 25 and 26 at the Berkeley Carteret Hotel, Asbury Park, N. J., under its regular sponsor, the Power Sources Branch, Signal Corps Engineering Laboratories, Fort Monmouth, N. J. More than 70 private firms from all over the United States, Canada, and Great Britain were represented, along with interested members of various government agencies. Chairman of the conference was Grenville B. Ellis, who is chief of the Power Sources Branch.

The purpose of this yearly Battery Conference is to enlighten members of industry and government agencies on battery research and development being carried on in the Signal Corps Engineering Laboratories and to provide a place where common problems affecting this industry can be discussed. More than 25 papers covering such items as nuclear batteries, the solid electrolyte battery, the conductive plastic cell, and miniature battery equipment for guided missiles were given during the two-day conference. Miniaturized battery equip-

© U. S. Army Photograph

Present at the Eighth Annual Battery Conference were (*left to right*): Brigadier General Wesley T. Guest, Commandant, The Signal School, Fort Monmouth, N. J.; Brigadier General Cho Eung Tyun, Chief Signal Officer, ROK Army; Mr. Grenville B. Ellis, Chief, Power Sources Branch, SCEL; and Colonel E. Tuttle, SCEL Military representative.

ment was the general theme running through most of the talks.

Sharing the spotlight with the miniature battery was the tiny transistor now taking the place of the vacuum tube in much of the newly developed electronic equipment. To point up the uses and advantages of this more compact equipment, a number of exhibits and demonstrations were presented to the more than 400 engineers attending the meetings.

The Radio Corporation of America presented their model of a portable radio using transistors throughout its entire circuit and drawing upon the power of a miniature battery. The dimensions of the RCA radio are about 4 x 7 x 2 in. and the tiny battery used, costing about 75¢, will supply power for 500 hr of operation. Another development presented by RCA making use of the team of transistor and miniature battery was a 45 rpm portable record player.

An exhibit drawing much interest was the small-screened television set with its entire circuit making use of the transistor with the exception of the picture tube. The set was portable and used a newly developed miniature battery for all its power.

One of the pieces of equipment displayed by the Signal Corps Engineering Laboratories was a small microphone-transmitter combination capable of sending a voice message to a loudspeaker without the use of connecting lines. Another piece was a much reduced in size frequency meter. Another and very significant development presented by these Signal Corps Laboratories was the hand held Geiger counter. This counter is about one tenth the size of the conventional shoulder-carrying type and is held in the palm of the hand. This is a completely portable piece of equipment powered by six coin-sized batteries able to operate some 7000 hr. All this equipment makes use of the transistor and miniature battery and is developed for military use only. Civilian use of the transistorized equipment is described as being about two years away.

Those participating in the conference were honored this year by the presence of two distinguished guests in the persons of Brigadier General Wesley T. Guest, Acting Commander of Fort Monmouth and Brigadier General Cho Eung Tyun, Chief Signal Officer of the Army of the Republic of Korea.

DIVISION NEWS

Battery Division

The Battery Division will elect officers to serve for a two-year term at its business meeting to be held at the Fall Meeting in Boston.

The Nominating Committee, consisting of J. N. Mrgudich, L. E. Pucher, and George W. Heise, has proposed the following nominations and been assured of each nominee's willingness to serve:

Chairman—N. C. Cahoon, National Carbon Research Laboratories, Cleveland, Ohio

Vice-Chairman—U. B. Thomas, Bell Telephone Laboratories, Inc., Murray Hill, N. J.

Secretary-Treasurer—E. J. Ritchie, Eagle-Picher Research Laboratories, Joplin, Mo.

Executive Committee Members-at-Large (to be elected)

J. M. Booe, P. R. Mallory and Company, Inc., Indianapolis, Ind.

J. J. Coleman, Burgess Battery Company, Freeport, Ill.

W. J. Hamer, National Bureau of Standards, Washington, D. C.

W. C. Vosburgh, Department of Chemistry, Duke University, Durham, N. C.

Additional nominations may be made by any active member of the Division, either in writing to the Secretary-Treasurer of the Division or from the floor at the business meeting. Such nominations must carry the assurance of the nominee's willingness to serve.

E. J. Ritchie, *Secretary-Treasurer*

Electrothermics and Metallurgy Division

The meeting reported here was held in Chicago's Hotel LaSalle on May 6, 1954. As customary, the Division Luncheon preceded the Annual Business Meeting which was opened and presided over by our Division Chairman, Dr. Ivor E. Campbell.

The Secretary-Treasurer's report showed a net gain of one member and a total Divisional membership of 288. The financial aspect of the report revealed the following:

Total income (interest)	$41.91
Total expense (stationery, etc.)	16.42
Net income for the period	25.49
New net worth (cash & bonds)	$3573.62

Dr. Campbell made formal announcement that the merger of the Electronic Division's Rare Metal Group with the Electrothermic Division had been completed and henceforth this Division will be known as:

The Electrothermics and Metallurgy Division.

Dr. Campbell reviewed the history and background of the change, the salient features of which should be recorded. One of the principal objectives of this amalgamation, which had its beginnings as long as two years ago, is to benefit the Society as a whole by strengthening through unification of interests. Although it is not the intent to do away with the original function of the old Electrothermic Division, neither is it the purpose to lessen the interest in metallurgical fields, particularly for those metals of current scientific appeal. In fact, it is the aim of the merger to intensify this latter field of endeavor through the prevention of overlapping

or duplication of efforts and meeting schedules. The various aspects of the merger have been the subject of much discussion and study in committee meetings, as well as in informal get-togethers of the various officers and interested members of both groups and of the Society's Board of Directors. This Board has voted its approval. Expressions of satisfaction with the joining of the Rare Metals and the Electrothermic Division, as well as the choice of the new name, were voiced. Approval by the members present was also given through a show of hands.

Dr. Campbell then reported that during a recent (April 13, 1954) Division Executive Committee Meeting it was proposed that the Division's income be put to work for the benefit of the Society. He stated that at that meeting the Committee agreed that the Division should sponsor two annual awards. These would be presented in recognition of outstanding work in the fields of electrothermics and metallurgy. It was further proposed that the awards be named in honor of a man whose contributions to the fields have made his name familiar to all students of these subjects. Two temporary committees were established at the same meeting to further study the subject and to make recommendations as to the name, mechanics, etc., of each award. Dr. A. U. Seybolt was appointed chairman of the committee for the metallurgical award and A. C. Haskell, Jr., as chairman for the electrothermic award. The recommendations of these committees were presented to the Chairman just prior to the Chicago Meeting. These proposals were presented to those attending the Business Meeting for open discussion. Dr. Seybolt's group recommended that the metallurgical award be presented for an annual lecture at the spring meetings. The other committee's recommendation pertained essentially to student theses in the field of electrothermics. A number of valuable suggestions were forthcoming (and recorded) but no definite conclusions were attained. In general, those attending the meeting were in favor of the proposal, which will revert back to the committees and Executive Board.

Dr. Marvin J. Udy, President of the Society, spoke briefly, congratulating the Divisions (i.e., Electronics and Electrothermic) on the above-mentioned merger, the then current symposium and meetings, the aiding and encouragement of students in our field, and the new local advisory committees. He also suggested that Local Sections sponsor, at least once a year, a talk on Americanism.

Dr. Campbell reported that the monographs on Refractory Materials and Vapor Deposition were progressing nicely, and shortly should be put to press.

Subjects which had already been proposed for the coming Fall and next Spring Meetings were announced. A request was made for additional suggestions from the floor. (Should any members not attending the meetings have proposals of subject matter for these meetings, they are asked to correspond with the undersigned.)

It was also announced that the Division's Bylaws were presently undergoing a first revision, which eventually will be subject of a vote.

Dr. Seybolt was asked by the Chairman to serve as an unofficial member of the Division's Executive Committee.

The meeting was then closed.

A. C. Haskell, Jr.
Secretary-Treasurer

SECTION NEWS

Chicago Section

On Friday, March 12, the Chicago Section of The Electrochemical Society held its monthly meeting jointly with the Chicago Branch of the American Electroplaters' Society. The meeting was held at the Western Society of Engineers' Building with about 150 in attendance for the dinner and meeting.

Dr. M. L. Holt of the Chemistry Department of the University of Wisconsin spoke on "The Electrodeposition of Alloys of Some of the Less Familiar Metals." He discussed in particular the transition metals which he described as metallic, high density, high melting point, catalytic elements which form alloys.

The group IV-b elements, titanium, zirconium, and hafnium, are not deposited from aqueous media because of their activity and tendency to hydrolyze. Group V-b elements, such as vanadium, niobium, and tantalum, are also not deposited from water. Elements, chromium, molybdenum, and tungsten from group VI-b and manganese and rhenium from group VII-b are deposited from aqueous solutions. There is some question as to the deposition of tellurium in group VII-b.

Current efficiencies for various element and alloy plating baths have been measured and were discussed. It was pointed out that current efficiencies for alloy baths were often higher than those for similar single element baths. Complexing agents useful in plating baths are citric acid, acetates, citrates, and tartrates. The most suitable base for basic plating baths is ammonium hydroxide.

Dr. Holt concluded the meeting with a short discussion of his catalytic theory of alloy deposition. This theory is useful in explaining laminar deposits of alloys. It may be illustrated by considering the following equations in which M_1 and M_2 are used to represent metals such as are indicated in the parentheses, and e is used to represent electrons:

Reduction and deposition of catalyst

$$M^{++} + 2e^- \rightarrow M(Ni, Co, Fe) \quad (I)$$

Reduction of anion

$$MO_4^- + 8H^+ + 6e^- \rightarrow M(W, Mo) + 4H_2O \quad (II)$$

Discharge of H_2

$$2H^+ + 2e^- \rightarrow 2H \rightarrow H_2 \quad (III)$$

Reaction (II) requires the presence of the catalyst deposited in reaction (I) and stops when the catalyst is covered. At this point, reaction (I) again takes place. Thus, a laminar deposit is formed by the alternate deposition of catalyst and reduced anion metal.

Dr. Holt answered questions raised from the floor after his talk. The interest stimulated by the talk was reflected in these questions.

The new officers of the Chicago Section, elected for 1954-1955, are:

Chairman—B. F. Freeberg, Vapor Car Heating Corporation, Chicago, Ill.

Vice-Chairman—E. L. Koehler, Armour Research Foundation, Chicago, Ill.

Treasurer—R. D. Misch, Argonne National Laboratory, Lemont, Ill.

Secretary—A. H. Roebuck, Argonne National Laboratory, Lemont, Ill.

A. H. Roebuck, *Secretary*

Detroit Section

Listed below are the newly elected officers of the Detroit Section:

Chairman—Wright W. Wilson, 1570 Anita, Grosse Pointe Woods, Mich.

1st Vice-Chairman—Andrew Liger, Wyandotte Chemicals Corporation, Wyandotte, Mich.

2nd Vice-Chairman—Gerald Kingsley, 12083 Ward Avenue, Detroit, Mich.

Secretary-Treasurer—Manny Shaw, 19411 Winthrop Avenue, Detroit, Mich.

Wright W. Wilson, *Chairman*

Midland Section

The annual Ladies' Night Meeting of the Midland Section was held on May 10 at the Midland Country Club with J. H. McPherson, psychologist in the Dow Chemical Company's Personnel Department, as guest speaker. The subject of Dr. McPherson's speech was "Some Personality Factors that Affect Creativity." He described and analyzed the life of a typical scientist in a highly amusing manner.

* * *

The Midland Section held its annual golf match and election of officers on June 9 at the White Birch Golf Course. The Dow Chemical Company's Electrochemical Division defeated the Magnesium Department in golf, and retained the Hunter-Hanawalt trophy for another year.

The annual business meeting was held after dinner, and the following officers were elected:

Chairman—F. N. Alquist, 2416 Manor Drive, Midland, Mich.

Vice-Chairman—M. P. Neipert, 3020 E. Miller Road, Midland, Mich.

Secretary-Treasurer—P. R. Juckniess, 1408 Crane Court, Midland, Mich.

Local Section Councilor for 1 year—F. W. Koerker, 4103 Dyckman Road, Midland, Mich.

Local Section Councilor for 2 years—H. A. Robinson, 616 E. Grove Street, Midland, Mich.

M. P. Neipert, *Secretary-Treasurer*

New York Metropolitan Section

The Metropolitan Section, at its annual meeting held May 6, elected the following officers:

Chairman—M. F. Quaely, 90 Mt. Hebron Road, Montclair, N. J.

Vice-Chairman—M. B. Diggin, 21 Weldon Road, Matawan, N. J.

Secretary-Treasurer—Kenneth B. McCain, Wilbur B. Driver Company, Newark, N. J.

Executive Committee—H. Bandes, Sylvania Electric Products Inc., Flushing, N. Y.

C. V. King, New York University, New York, N. Y.

Representatives on Council of Local Sections—A. C. Loonam, 70 East 45 Street, New York, N. Y.

H. Bandes, Sylvania Electric Products Inc., Flushing, N. Y.

Kenneth B. McCain, *Secretary-Treasurer*

Pacific Northwest Section

The following officers have been elected by the membership of the Pacific Northwest Section to serve for the year 1954–1955:

Chairman—Joseph B. Heitman, Pennsylvania Salt Manufacturing Company of Washington, Tacoma, Wash.

Vice-Chairman—G. H. Kissin, Kaiser Aluminum & Chemical Corporation, Department of Metallurgical Research, Spokane, Wash.

Secretary-Treasurer—Kenneth L. Sanborn, General Electric Company, 2005 Pullen, Richland, Wash.

G. H. Kissin, *Vice-Chairman*

NEWS ITEMS

Education in Nuclear Physics

Thirty-five of the nation's leading authorities on the atom and its potential use as a source of power met on the Columbia University campus from April 22 to 24 for a "summer Institute on Nuclear Physics in Engineering Education."

The group of 21 educators, 9 government scientists, and 5 industry representatives met in a closed conference to lay the groundwork for a larger open conference scheduled for September 7 to 11 at Northwestern University. Both conferences are sponsored jointly by The American Society for Engineering Education, the American Institute of Physics, the National Science Foundation, Columbia University, and Northwestern University.

Under the chairmanship of Charles F. Bonilla, professor of chemical engineering at Columbia, the preliminary conference considered ways of bringing about closer coordination between the teaching of physics and of engineering, particularly in the field of nuclear power. It is felt that this field can reach its full potentialities only when engineers understand the theory behind it as well as its practice.

The working panel at the preliminary conference was made up of engineers, physicists, and administrators. Two-thirds of each group consisted of teachers and one-third represented industry and government laboratories. The 3-day conference featured presentation and discussion of the views of the industrial and laboratory representatives as to the desirable physics training for engineers in the different branches; presentations by teachers of material and methods which they have found to work well in presenting nuclear physics to engineering students; and general discussion and flexible conclusions as to what can and should be done in teaching nuclear physics to engineers at the under class, upper class, and graduate levels.

NACE Technical Committee Chairmen Named

Chairman of six major technical committees of the National Association of Corrosion Engineers, Houston, Texas, have been named as follows:

T-1 on Corrosion of Oil and Gas Well Equipment—E. C. Greco, United Gas Corporation, Shreveport, La.

T-2 on Pipe Line Corrosion—W. H. Stewart, Sun Pipe Line Company, Beaumont, Texas.

T-3 on General Corrosion—F. M. Watkins, Sinclair Research Laboratories, Harvey, Ill.

T-4 on Utilities—F. E. Kulman, Consolidated Edison Company of New York, Inc., New York, N. Y.

T-5 on Corrosion Problems in the Process Industries—Paul J. Gegner, Columbia-Southern Chemical Corporation, Barberton, Ohio.

T-6 on Protective Coatings—A. J. Liebman, Pitmar Centrifugal Machine Corporation, Pittsburgh, Pa.

Steel Container Symposium Weighs Phosphate Treatments

The evaluation of phosphate treatments of steel shipping containers to achieve the objectives of better surface for application of exterior and interior coatings and interior cleanliness of containers was considered recently at Battelle Memorial Institute at a symposium sponsored by the Steel Shipping Container Institute, Inc.

The symposium was the second of its kind and is part of a wide industry research program. Attending the symposium, in addition to container manufacturers, were phosphating and coating manufacturers, representatives of the principal industries using steel containers, the several branches of the Armed Services, and the trade press.

Pretreatment studies under way since 1948 for the Steel Shipping Container Institute were reviewed by members of the Steel Shipping Container industry and Battelle Memorial Institute, and phosphating and coating manufacturers reported on developments in their field.

The symposium concluded with a question and answer period, followed by dinner at the Deshler Hilton Hotel.

O. W. Storey Retires

O. W. Storey at the wheel of his new Cadillac

On May 11 over fifty business associates and friends of Oliver W. Storey attended a testimonial dinner in his honor at the Shady Lane Farm, Marengo, Ill. Mr. Storey had announced his retirement after 42 years of service with the Burgess Companies.

In behalf of the Companies which he served, Jackson Burgess presented Mr. and Mrs. Storey with a Cadillac sedan. In making the presentation Mr. Burgess stated that Mr. Storey had actually served a combined total of 106 years in doing work with Burgess Battery Company, Burgess Cellulose Company, Burgess-Manning Company, Burgess Vibrocrafters, Inc., and C. F. Burgess Laboratories, Inc. (Mr. Burgess is the son of the late C. F. Burgess, former President of the Society.)

For the past nine years Mr. Storey has been a consultant expert in the field of chemistry, metallurgy, patents and patent law. He first became associated with the Burgess Companies in 1912 when he did laboratory research work under C. F. Burgess. He is a graduate of the University of Wisconsin, where he studied chemical engineering as a student under Dr. Burgess.

Except for a brief period when Oliver Storey worked in Pittsburgh, his entire working experience was with one or another of the many Burgess Companies. In his early years with the Company he did a great deal of work on a process for sherardizing metals, corrosion problems, the development of calcine coke, plus work on manganese ores and electrolytic iron. His constant interest in research kept him active in the manufacture of caustic soda, titanium dioxide and acoustic and insulation materials. These projects were especially important to the early history of the Burgess Companies.

Active in Electrochemical Society affairs, Mr. Storey was one of the founders of the Battery Division. In 1949 he delivered the Joseph W. Richards Memorial Lecture on "Research in Industry." He was Chicago Regional Editor of the JOURNAL and most recently served as Honorary Chairman of the 1954 Chicago Meeting.

Early in June the Storeys moved to their new home in Santa Barbara, Calif.

PERSONALS

A. F. G. CADENHEAD, chemical consultant, Montreal, was awarded an Honorary Fellowship in The Chemical Institute of Canada at its 37th Annual Conference and Exhibition in Toronto. This honor was granted in recognition of his significant contributions to Canadian chemistry and chemical engineering and of his long participation and effective leadership in Canadian chemical organizations.

ROBERT H CHERRY, head of the chemical section, research department, Leeds & Northrup Company, Philadelphia, recently observed his 25th anniversary with the instrument manufacturer. He holds several patents on devices for gas analysis, polarography, and electronic instrumentation, and is a frequent contributor to technical magazines. Active in Electrochemical Society affairs, Mr. Cherry is a past director of the Society, past Chairman of the Electronics Division, and past Secretary and past Chairman of the Philadelphia Section. He is also a councilor of the Philadelphia Section of the American Chemical Society and a member of the Faraday Society and the American Association for the Advancement of Science.

LESTER E. LIGHTON, a vice-president of The Electric Storage Battery Company, Philadelphia, has been awarded an honorary degree of doctor of science by Bucknell University, Lewisburg, Pa., for "his contributions to enlarging the resources of modern engineering."

E. K. MCMAHON, formerly Supervisor, Chemical Engineering, Tennessee Products & Chemical Corporation, Chattanooga, recently transferred to the company's Nashville Office in the capacity of Manager of Technical Sales Development.

NEW MEMBERS

In May 1954 the following were elected to membership in The Electrochemical Society:

Active Members

WILLIAM FIELD ARCHIBALD, Midwest Carbide Corporation, mail add: P. O. Box 554, Keokuk, Iowa (Electrothermics and Metallurgy)

THOMAS BRUCE BLAIR, Western Lead Products Company, 4530 E. Pacific Highway, Los Angeles 22, Calif. (Battery, Corrosion, and Theoretical Electrochemistry)

HOWARD MARTIN BRODERICK, General Electric Company, mail add: 127 Strong Ave., Pittsfield, Mass. (Electric Insulation)

TOBIAS BRODTKORB, Elektrokemisk A. S., mail add: 101 Park Ave., Rm. 308, New York 17, N. Y. (Electrothermics and Metallurgy)

JOHN DUDLEY CORBETT, Ames Laboratory, Department of Chemistry, Iowa State College, Ames, Iowa (Theoretical Electrochemistry)

BRUCE L. DAVIS, Aluminum Company of Canada Ltd., Arvida, Quebec, Canada (Electrothermics and Metallurgy and Industrial Electrolytic)

PHILIP H. EISENBERG, Sylvania Electric Products Inc., mail add: 54 Wyckoff St., Hicksville, Long Island, N. Y. (Electrodeposition)

RUSSELL HARRY FAY, Dow Chemical Company, Materials Engineering Department, Midland, Mich. (Corrosion)

MARY VIRGINIA HOFFMAN, General Electric Company, Chemical Works Department, 1099 Ivanhoe Road, Cleveland 10, Ohio (Electronics)

ROBERT B. HOLDEN, Sylvania Electric Products Inc., Bayside, N. Y. (Electrothermics and Metallurgy)

HARRY WALKER HOLLAND, National Carbon Company, West State St., Fremont, Ohio (Battery)

THOMAS L. HURST, Monsanto Chemical

Company, Columbia, Tenn. (Electrothermics and Metallurgy)

MARGARET PEOPLES KORVER, National Carbon Research Laboratories, mail add: P. O. Box 212, Brecksville, Ohio (Battery and Theoretical Electrochemistry)

LAWRENCE M. LITZ, National Carbon Research Laboratories, mail add: P. O. Box 6087, Cleveland, Ohio (Electrothermics and Metallurgy)

JACK A. MCCARTHY, Sikorsky Aircraft, mail add: 195 Glenbrook Rd., Bridgeport, Conn. (Corrosion and Electrodeposition)

HENRY BARCLAY MORLEY, Hooker Electrochemical Company, Research Department, Niagara Falls, N. Y. (industrial Electrolytic and Theoretical Electrochemistry)

FRANCIS W. RINGER, own company, Consulting Engineer, mail add: 7 Hampden Ave., Narberth, Pa. (Corrosion and Electronics)

GEORGE SCHLOTZER, General Electric Company, mail add: 15510 Huntmere Ave., Cleveland 10, Ohio (Electronics)

RONALD E. SHAW, Rockwell Spring and Axle Company, P. O. Box A, Newton Falls, Ohio (Electrodeposition)

JAMES THADDEUS STERLING, National Bureau of Standards, 208 N. W. Bldg., Washington 25, D. C. (Electronics and Electrothermics and Metallurgy)

GEORGE LANDIS ZIMMERMAN, Bryn Mawr College, Chemistry Department, Bryn Mawr, Pa. (Theoretical Electrochemistry)

Student Associate

PETER JOSEPH LUCCHESI, New York University, mail add: 71-10 34 Ave., Jackson Heights, N. Y. (Theoretical Electrochemistry)

Associate Transfer to Active

CHARLES SAMUEL PORTER, Diamond Ordnance Fuse Laboratories, 53-1, Washington, D. C. (Electric Insulation and Electronics)

Reinstatements: to Active

THOMAS F. BROWN, JR., National Distillers Products Corporation, P. O. Box 1935, Baltimore 3, Md. (Industrial Electrolytic)

REINHARD H. BEUTNER, Des Moines Still College of Osteopathy and Surgery, mail add: 818 Center St., Des Moines 14, Iowa (Theoretical Electrochemistry)

WILLIAM BARRETT ROSE, Westvaco Chlor-Alkali Division, Food & Machinery Chemical Corporation, mail add: 161 East 42 St., New York 17, N. Y. (Industrial Electrolytic)

ECS Membership Statistics

The following two tables give breakdown of membership as of July 1, 1954. The Secretary's Office feels that a regular accounting of membership will be very stimulating to membership committee activities. In Table I it should be noted that the totals appearing in the right-hand column are *not* the sums of the figures in that line since members belong to more than one Division. But the totals listed are the total membership in each Section, with the exception that Sustaining Memberships are not broken down by Sections or Divisions. Since Sustaining Members are not broken down by Sections or Divisions, the total listed in Table I will be less than the total in Table II, the difference being the total number of Sustaining Memberships.

TABLE I. *ECS membership by Sections and Divisions*

Section	Division										
	Battery	Corrosion	Electric Insulation	Electro-deposition	Electronics	Electro organic	Electrothermic & Met	Ind electrolytic	Theoretical	No Division	Total As of 7/1/54
Chicago	11	35	4	49	11	8	9	8	17	10	104
Cleveland	36	34	5	48	29	7	21	26	39	11	153
Detroit	6	18	6	32	5	7	4	3	19	10	65
India	5	5	3	13	3	4	6	16	5	4	33
Midland	6	12	0	6	1	2	5	13	6	3	35
New York	59	102	18	127	70	30	45	56	81	58	404
Niagara Falls	4	17	0	16	3	8	41	39	11	14	109
Pacific Northwest	5	11	0	7	4	1	5	12	8	4	31
Philadelphia	23	24	6	32	40	17	16	14	35	23	153
Pittsburgh	3	26	4	17	7	5	19	13	21	9	69
San Francisco	7	9	0	13	7	3	6	14	10	4	39
Washington-Baltimore	33	34	10	28	13	4	13	14	27	9	99
U. S. Nonsection	68	156	26	172	88	56	92	105	144	81	622
Canada Nonsection	8	13	0	12	0	6	17	19	7	14	52
England	6	8	2	9	4	3	6	8	7	17	37
Foreign Nonsection	19	29	4	40	14	17	21	37	41	47	143
Total as of 7/1/54	299	533	88	621	299	178	326	397	478	318	2149

In June 1954 the following were elected to membership in The Electrochemical Society:

Active Members

DAN H. BARBOUR, Union Carbide and Carbon Company, mail add: 1066 85 St., Niagara Falls, N. Y. (Electrodeposition and Electrothermics and Metallurgy)

MARC GRIFFON DU BELLAY, Societe d'Electrochimie, Pierre Benite, Rhone, France (Industrial Electrolytic and Theoretical Electrochemistry)

LOUIS J. FRISCO, Johns Hopkins University, Institute for Cooperative Research, 1315 St. Paul Street, Baltimore 2, Md. (Electric Insulation)

DAVID KENNETH PRIEST, The Pfaudler Company, 1000 West Ave., Rochester 3, N. Y. (Corrosion)

TABLE II. *ECS membership by grade*

	Total As of 7/1/54
Active	1896
Delinquent	90
Life	14
Emeritus	34
Associate	73
Student	37
Honorary	5
Sustaining	103
Total	2252

Correction

An error was made in the Annual Report of the Secretary which appeared in the July issue of the JOURNAL. The total number of Sustaining Memberships should be 103, not 119.

RECENT PATENTS

Selected by Fred W. Dodson, Chairman of the Patent Committee, from the Official Gazette.

April 20, 1954

Kennedy, F. J., 2,675,813, Apparatus for Conveying Pipe Through an Electrolyte

Hesse, K. R., 2,676,110, Method of Producing Luminescent Screens

Reynolds, D. C., Middleton, A. E., and Peet, C. S., 2,676,111, Phosphor Composition Containing Indium and Method of Producing Same

Middleton, A. E., Reynolds, D. C., and Peet, C. S., 2,676,112, Phosphor Product Containing Indium and Method of Producing Same

Jervis, E. R., 2,676,113, Composite Scotophor-Phosphor Cathode-Ray Tube Screen

Colbert, W. H., Morgan, W. L., and Weinrich, A. R., 2,676,117, Light Transmissive Electrically Conducting Optical Article

Wiechers, S. G., and van Hoek, C., 2,676,144, Process for Desalting Liquids Contaminated with Ionizable Substances Containing Chlorides

Weisz, P. B., and Goodwin, R. D., 2,676,145, Gaseous Polymerization by Electrical Discharge

Rendel, G. H., 2,676,146, Differential Meter

Thierfelder, C. W., 2,676,154, Luminescent Screen Composition

Hart, J. V., 2,676,195, Protecting Tube for Thermocouples

Marsden, R. S., Jr., 2,676,196, Electrical Transducing Element

Polkosky, J. J., 2,676,282, Photocathode for Multiplier Tubes

April 27, 1954

Buhrendorf, F. G., 2,676,392, Method of Making Filamentary Electro-Magnetic Transducers

Zelley, W. G., 2,676,916, Electroplating on Aluminum

Hammond, M. B., and Bowman, G. B., 2,676,917, Method of Making Corrosion Resistant Articles Having a Bright Surface

Pawlyk, P., 2,676,918, Formation of Wrinkling Oils by Polymerizing Nonwrinkling Bases

Arbeit, P., and La Burthe, P., 2,677,003, Glass Furnace

Biggle, L. C., 2,677,004, Thermoelectric Generator and Pilot Burner Assembly

Land, T., and Jewell, R. C., 2,677,005, Thermocouple

Amein, K. R., 2,677,006, Alkaline Electric Storage Battery Cell

Jensen, M. S. G., 2,677,007, Retainer and Separator Mats for Storage Batteries

Fairclough, E., and Rose, C. C., 2,677,008, Storage Battery Separator

Carne, G. G., 2,677,071, Voltage Reference Tube

May 4, 1954

Delrieu, P., and Claude, A., 2,677,623, Process for Manufacturing Electron Emissive Material and Electrodes

Montgomery, H. R., and Szymaszek, J. W., 2,677,627, Process of Coating Carbonaceous Material with Silicon Carbide

Dana, H. J., and Albrook, R. L., 2,677,651, Sheet for Electrical Inscription

Howell, R. E., 2,677,652, Method of Electrotinning Continuous Steel Strip

Chester, A. E., and Irwin, J. T., 2,677,653, Copper Electroplating Compositions and Process

Chester, A. E., and Irwin, J. T., 2,677,654, Copper Electroplating and Compositions Therefor

Klumb, G. H., 2,677,655, Cathodic Protection for Water Softeners and Filters

Overbeck, R. C., 2,677,656, Liquid Cathode Electrolysis Cell

Southern, R. L., and Taylor, L. D., 2,677,710, Furnace Structure

Ray, W. A., 2,677,711, Radiation Thermocouple

Biggle, L. C., 2,677,712, Thermopile Structure

Weil, V., and Heberer, W., 2,677,713, Cell Unit for Accumulators and Method to Produce It

Auwarter, M., 2,677,714, Optical-Electrical Conversion Device Comprising a Light-Permeable Metal Electrode

Auwarter, M., 2,677,715, Optical-Electrical Conversion Device Comprising a Light-Permeable Metal Electrode

MacFarland, A. M., 2,677,716, Dry Cell Battery

Rieg, A. H., 2,677,812, Battery Connector Clamp

May 11, 1954

Geese, C. F., and Lytle, D. B., 2,678,299, Method of Making Planographic Printing Plates

Sturtevant, J. M., 2,678,300, Means for Controlling Flow of Electrolyte to an Electrolytic Cell

Stoertz, H., 2,678,340, Storage Battery Grid Composition

TEXTBOOK OF
ELECTROCHEMISTRY
By G. Kortum *and* J. O'M. Bockris

This English edition of the outstanding classic in electrochemistry not only presents a fundamental basis for understanding electrochemical methods, but provides the practical information necessary for all workers in the electrochemical industry. Vol. I: 352 pp., 48 illus., $7.00. Vol. II: 530 pp., 79 illus., $10.00.

ELECTROCHEMICAL DATA
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This most practical guide provides information on all aspects of electrochemistry for which exact data of known accuracy are available. Many of these data are not in the usual handbooks. A volume of immense value to all workers in the electrochemical industry. 374 pp., 269 tables, $8.75.

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Stoertz, H., 2,678,341, Storage Battery and Grid Therefor

Porter, D. C., 2,678,342, Primary Battery Unit with Sprayed Metallic Electrodes

Daniel, A. F., 2,678,343, Depolarizer Material for Primary Cells

Strohlein, E. M., and Albert, W. W., 2,678,344, Storage Battery Filling and Venting Device

Crooks, L. G., 2,678,345, Storage Battery Nonoverfill Device

May 18, 1954

Binder, W. O., and Bishop, C. R., 2,678,881, Corrosion Resistant Alloy

Tucker, W. M., 2,678,908, Method of Forming Ferrotyping Surfaces

Jernstedt, G. W., and Patrick, J. D., 2,678,909, Process of Electrodeposition of Metals by Periodic Reverse Current

Brown, H., 2,678,910, Electroplating of Nickel

Chittum, J. F., 2,678,911, Emulsion Testing

Hintenberger, K., 2,678,958, Electric Oven for the Burning of Ceramic Articles

Lozier, J. C., and Weller, D. C., 2,678,959, Temperature-Controlled Induction Furnace

Jensen, H. E., 2,678,960, Battery Terminal Post Mounting

Uhlig, E. C., and De Fusco, A., 2,678,961, Battery Separator and Method of Making Same

Jensen, H. E., 2,678,962, Terminal Post Mounting for Plastic Battery Covers

May 25, 1954

Swartz, C. K., 2,679,473, Method of Preparing Molds to Produce Crackle and Other Surface Finishes on Molded Plastic Articles

Pajes, W. S., 2,679,474, Process of Making Optical Zone Plates

Singler, J. C., 2,679,475, Metal Blackening Composition and Method

Joffre, S. P., 2,679,476, Process of Making Rhodinol

Kistler, S. S., 2,679,545, High-Temperature Resistor and Method of Operating It

Eisen, J. B., 2,679,546, Battery Component

Fischbach, A., and Linden, D., 2,679,547, Thin Plate Battery

Raag, N., 2,679,548, Electric Dry Cell

Rezek, G., and Medlar, L. A., 2,679,549, Apparatus for Heating Cold Batteries

Smith, R. W., and Schwartzwalder, K., 2,679,568, Ceramic Contact Resistor Composition

Hall, R. D., 2,679,569, Electrically Conductive Film

MEETINGS OF OTHER ORGANIZATIONS

ARMOUR RESEARCH FOUNDATION OF ILLINOIS INSTITUTE OF TECHNOLOGY will hold a symposium on light microscopy on Oct. 11–13, followed by a symposium on electron microscopy sponsored by the Electron Microscope Society of America on Oct. 14–16, at the Moraine Hotel, Highland Park, Ill. Sessions are scheduled in photomicrography, ultraviolet and infrared microscopy, fusion methods in analysis, phase microscopy, and x-ray and ion microscopy.

TWELFTH ANNUAL PITTSBURGH DIFFRACTION CONFERENCE, Mellon Institute, Pittsburgh, Pa., Nov. 3–5; joint meeting with the American Crystallographic Association. Technical sessions are being arranged on Instrumentation and Methods, Metals, Neutron Diffraction, Small-Angle Scattering, and Silicates and Related Structures. Papers on general diffraction subjects will also be accepted. Titles should be submitted before Sept. 1 to the Program Chairman, Professor G. A. Jeffrey, University of Pittsburgh, Pittsburgh 13, Pa. For further information and for a copy of the preliminary program when available, write to Dr. P. K. Koh, Allegheny Ludlum Research Laboratories, Alabama Avenue, Brachenridge, Pa.

TULSA SECTION, NATIONAL ASSOCIATION OF CORROSION ENGINEERS, Sixth Annual Corrosion Short Course for Pipeliners, Mayo Hotel, Feb. 16–18, 1955.

LITERATURE FROM INDUSTRY

TEFLON GENERAL-PURPOSE PACKINGS. New catalogue on "Chemiseal" general-purpose packings, made of chemical-resistant Teflon, has been published. Products illustrated and described are braided pure Teflon and braided Teflon-impregnated blue or white asbestos available in coils and cut rings; extruded Teflon packing; and Teflon bulk packing. Convenient, how-to-order information is also included. United States Gasket Co. P-223

"A LIST OF 'DAG' DISPERSIONS FOR INDUSTRY." A 4-page booklet containing a list of 40 dispersions of colloidal graphite, molybdenum disulfide, vermiculite, and zinc oxide, has been issued. Typical applications, densities, carriers, and other important data are given. Recent additions to the list are dispersions which offer the advantages of the valuable new epoxy resins as bases for 'dag' colloidal graphite and molybdenum disulfide dry-film coatings. Acheson Colloids Co., Division of Acheson Industries, Inc. P-224

BRUSH "ALODINE" NO. 1200. Folder describes the ACP protective coating chemical that greatly improves the corrosion-resistance of unpainted aluminum and forms a durable bond for paint. Brush "Alodine" No. 1200 is applied manually; meets the requirements of Military Specification MIL-C-5541. Of interest to those who fabricate or work with aluminum products. American Chemical Paint Co. P-225

"THE LABORATORY." The newest issue of "The Laboratory," Vol. 23, No. 4, features a comprehensive look at the little-known research behind the modern wristwatch. The article "Time on Your Hands" contains the world's first announcement of the oilless wristwatch developed by Hamilton Watch researchers in the U. S. Several new instruments and appliances are announced and several new reagent chemicals are listed in the same issue. Noteworthy is an ultra-pure aluminum nitrate reagent for uranium researchers; the reagent has only 0.0000001% uranium. Also included is a 1-page picture-story on the "Louis Pasteur," a 40-foot-long "floating laboratory." Fisher Scientific Co. P-226

SELENIUM RECTIFIERS. 24-page illustrated booklet entitled "Fansteel Selenium Rectifiers—Engineering Information Bulletin 6.400" contains much information useful to the design engineer who uses rectifiers: standard cell sizes and ratings; typical rectifier circuits, formulas, and constants; elementary operating principles; typical characteristic curves; typical test circuits; operation of rectifiers at higher than normal temperatures; installation and care; typical applications with circuit diagrams. Fansteel Metallurgical Corp. P-227

ORGANIC ACIDS IN METAL FINISHING. A 17-page bulletin on the uses of citric, gluconic, tartaric, and oxalic acids and

their salts in the cleaning, polishing, and plating of metals has recently been issued. The booklet contains discussions of metal cleaning, electropickling, rust and scale removal, electrodeposition and polishing, nonelectrolytic deposition, and other processes. Aside from the acids themselves, uses of the following salts are reviewed: sodium citrate, ammonium citrate, sodium gluconate, ammonium oxalate, tartar emetic, Rochelle salt, and cream of tartar. Chas. Pfizer & Co., Inc. P-228

"Kodak Photorecording Papers and Films." New leaflet describes the photographic characteristics and the large variety of winding specifications available in papers and films for use in oscillographs and other recording instruments. Described are the various Kodak Linagraph Papers and Films and Kodak Verichrome Film as spooled for photorecording. Data are given on the light sensitivity of all the materials and on their thicknesses. Photographs illustrate the cores and spoolings. Processing recommendations are also included for the five Kodak Linagraph Papers. Eastman Kodak Co. P-229

Tin in Industry. The story of Straits Tin, a pictured narrative of the metal's almost limitless present and prospective uses in American industry and of operations in mining it in Red-guerrilla-plagued Malaya, is told in a new 20-page booklet entitled "Straits Tin, A Most Useful Metal for American Industry." The booklet examines an impressive array of tin uses ranging from packaging Geiger counters and lubricating pistons to linking the world's communications and stabilizing plastics. In pictures and text, the publication studies the use of tin in containers, engines and vehicles, tin-alloy plating, tin solders, bearings, improving alloys, and in chemistry. Copies will be sent on request to industrial executives and technologists. The Malayan Tin Bureau. P-230

Demineralization. The most comprehensive editorial treatment ever accorded the subject of demineralization in a company publication is contained in a 24-page bulletin. Chemical and mechanical factors entering into the design and operation of demineralizing plants for obtaining the highest quality process water and boiler feedwater from a wide range of water supplies and under many different operating conditions are fully explained. Of special value to readers is a section concerned with estimating chemical operating costs of various demineralizing systems. Flow charts showing demineralization systems for chemical plants and power plants are another point of interest. Graver Water Conditioning Co. P-231

NEW PRODUCTS

Switchboard and Panel Instruments. A new line of 4½-in. switchboard and panel instruments with clear plastic fronts and "in-line" pointers and dials, known as the Model 610 Group, has just been announced. The plastic fronts admit a maximum amount of light on the dial from the sides, top, and front, and thus eliminate need for internal illumination under normal operating conditions. The "in-line" pointer and dial in which the scale is raised in plane with the pointer tip, eliminates parallax errors and permits accurate readings at an angle. Available in types and ranges to meet all switchboard and special requirements. Weston Electrical Instrument Corp. N-93

Vacuum Tube Electrometer. New instrument, designated the Model 210, is a line-operated d-c vacuum tube voltmeter with an extremely high input impedance. Basic specifications include an input greater than 10^{14} ohms, grid current below 10^{-13} amp, and drift within 10 mv/hr. Five voltage ranges are provided: zero to 0.8, 2, 8, 20, and 80 volts in either polarity. Typical applications include potential measurements of charged capacitors, vacuum tube electrodes, and piezo-electric crystals. Current measurements cover photocell, mass spectrometer, and insulation leakage currents. Keithley Instruments. N-94

Corrosion Resistant Wires. The invention and commercial development of a new method for economical coating of steel wires with corrosion-resistant copper, nickel, or other metals has been announced. The process provides very close control of the base material, cleaning and plating processes, and efficient cycling of plating baths to produce fine grain, ductile coatings for drawing without flaking. Compact equipment design is made possible by feeding wire rod

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from a spiralled coil. The thickness of basic, uniform, corrosion resistant coatings is controlled electrically. Applications include high voltage power transmission lines, guy wires, telephone lines and switchboards. Kenmore Metals Corp. N-95

RECORDING CONTROLLERS. A new line of process instruments, including potentiometric and a-c bridge recorders and recording controllers, is now available. The instruments, designed for continuous measurement and control uninterrupted by periodic standardization, incorporate new measurement circuitry and components. Foremost among the new features are a magnetic standard in the potentiometric system and a bridge-balancing unit in the a-c bridge system. Some advantages of the equipment include plug-in components, anti-backlash gearing, internal illumination, and an integral pen-inkwell assembly designed for automatic realignment. General Electric Co. N-96

GLO-QUARTZ IMMERSION HEATER. Heating unit with some unusual properties is now being marketed. It is a wand of fused quartz, less than ½ in. in diameter and encasing a 400-watt heating coil, which can be used glowing-hot directly in an acid bath. Because of the resistance of quartz to thermal shock, the Fisher Glo-Quartz Heater (Reg. U. S. Pat. Off.) does not crack, break, or short-circuit under this treatment. Fisher Scientific Co. N-97

STAINLESS STEEL BELLOWS VALVES. A new series of small bellows valves, specifically designed for highly corrosive applications, high vacuum work, and mass spectrometry has been announced. This group of valves, designated the 440 Series, incorporates a long life, inert, arc-welded bellows assembly of 18-8 stainless steel. Tests show this assembly capable of withstanding more than 100,000 cycles, at low pressure, in noncorrosive service. These valves provide a low leakage rate across the seat and into the valve. Another advantage is a back-seating feature, especially useful in corrosive fluid application, in event of a bellows rupture. Hoke, Inc. N-98

10- AND 20-POINT RECORDERS. Two new electronic strip chart recording instruments designed to record 10 and 20 points have been introduced. The 20-point strip chart recorder yields 25% more data than 16-point recorders without a proportionate increase in either size or maintenance expenses. It is particularly suited for such installations where a quantity of information is required but where measurement is limited either by cost or space considerations. The power and utility industry fields were cited as typical installations where this holds true. Minneapolis-Honeywell Regulator Co. N-99

MINIATURE ELECTRICAL RECORDER. A light-weight, direct-writing recorder for voltage and current records, in both a-c and d-c models, is now available. Extremely portable and with the self-shielded CORMAG[R] instrument mechanism, its wide field of usefulness includes recording ampere-hour demand in power company surveys; checking reports of low voltage, overloads, or unbalanced conditions; monitoring radio detectors when used with electronic amplifiers; recording current and duration in electroplating and metal refining; recording speed, as well as life tests of batteries of all types, lamps, etc. Weston Electrical Instrument Corp. N-100

SPECTRACORD SPECTROPHOTOMETER RECORDER. A new instrument, called the Warren Spectracord, is now being manufactured. Field tests have shown it to be the fastest recording-spectrophotometer yet developed. Automatically scanning and recording the entire visible or ultraviolet spectrum in less than a minute, the Spectracord is about 30–40 times faster than contemporary instruments in its own price field, about 10 times faster than the high-precision instrument in the twice-the-price field. Advanced servo techniques have made possible this high speed at high resolution with a minimum of components, and these are packaged in replaceable plug-in units. Fisher Scientific Co. N-101

RETRACTABLE GEAR ASSEMBLIES. Retractable gear assemblies for magnesium anodes which can be replaced under pressure without suffering the penalty of "down time" will soon be marketed. The ENCOA complete assembly with special quick-opening valve and a year's supply of anodes is expected to fill a long-felt want in condenser, storage tank, and many other applications where cathodic protection is indicated. The unit will not only eliminate "down time" but will cut to a minimum anode replacement time. Engineering Corp. of America. N-102

To receive further information on any New Product or Literature from Industry listed above, send inquiry, with key number, to JOURNAL of The Electrochemical Society, 216 West 102nd Street, New York 25, N. Y.

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ELECTROMETALLURGIST. B.S., M.S., and Ph.D. degrees in metallurgy. Permanent resident alien. Eight years in nonferrous and corrosion research. Knowledge of corrosion, hydro- and electrometallurgy, radiography, x-ray diffraction, spectro-analysis, and heat treatment. Desires position in research, production, or plant control with opportunity for experience and advancement. Location immaterial. *Reply to Box 357.*